

Claims

1. A trawling vessel for use with a trawl net (5) for catching marine bio-resources, with a trawl sack (3) attached aft on a trawl net (5) for keeping the catch, said vessel
5 comprising lines (51, 61) for towing and hauling said trawl net (5) and trawl drums (6) for hauling said trawl net (5),
characterized by

a lock chamber (1) in a stern (21) of said vessel, said lock chamber (1) having
a main portion of its volume below said design water line of said vessel, said lock
10 chamber (1) being arranged for hauling said trawl sack (3) with the catch from the sea, through a sluiceway (2) in said stern (21), and said lock chamber (1) being
arranged for discharge of said trawl sack (3) and for temporarily keeping said catch;
and

a trunk channel (16, 12) leading up from said lock chamber (1) and being
15 arranged so that said trawl sack (3), in a generally discharged state, may be hauled up through said trunk channel (16, 12) to a deck (24), thereby leaving said catch in
said lock chamber (1).

2. The vessel of claim 1,
20 having a forward trunk channel (16) leading up from a forward end of said lock chamber (1) and arranged so that said trawl sack (3), in a generally discharged state, may be hauled up through said forward trunk (16) channel to a deck (24), leaving
said catch in said lock chamber (1).

25 3. The vessel of claim 1,
having trawl winches (62) for said lines (51, 61) for towing and hauling said trawl net (5).

4. The vessel of claim 1,
30 said lines being port and starboard lines (51, 61), said lines provided with port and starboard trawl doors (60sb, 60p) arranged on said port and starboard ancillary lines (51, 61) respectively, for spreading port and starboard front ends (53, 54) of said
trawl net (5).

35 5. The vessel of claim 1,
in which said mainly water-filled lock chamber (1) being for hauling said trawl net (5) in addition to said trawl sack (3) with the catch, from the sea, through said sluiceway
(2) to said lock chamber (1).

6. The vessel of claim 1,
having a widened upper mouth of said trunk channel (16, 12) for facilitating using
either starboard or port trawl winches (6sb, 7sb, 6p, 7p) for hauling said net (5) or
said trawl sack (3).

7. The vessel of claim 1,
said lock chamber ceiling (18) covering generally all of said lock chamber (1), said
forward trunk channel (16) running through said ceiling (18).

8. The vessel of claim 1,
said sluiceway (2) also being arranged mainly below said vessel's design water line
in said stern (21).

9. The vessel of claim 1, having a lock gate (9) for closing and opening said
sluiceway (2).

10. The vessel of claim 1, said sluiceway (2) arranged near a centreline in said
stern (21).

11. The vessel of claim 1, stern being a transom stern (21).

12. The vessel of claim 1, a trawl sack extension (35) arranged between said trawl
net and said trawl sack (3).

13. The vessel of claim 1, with a pulling line (8) arranged for being attached to a
forward end (31) of said trawl net (5) or said trawl sack (3) or said trawl sack
extension (35), for hauling said trawl sack (3) into said lock chamber (1).

14. The vessel of claim 13, in which said pulling line (8) is arranged for being
extended from a net drum (7) arranged on a trawl deck (10), through said forward
trunk channel (16) and through said lock chamber (1), by means of a conveyor
device (13a, 13b).

15. The vessel of claim 1, having an aft trunk channel (12) extending up through
said ceiling (18) from an aft end of said lock chamber (1), arranged for the entire, or
an aft part (32) of said trawl sack (3) in a generally discharged state, to be pulled up
through said aft trunk channel (12).

16. The vessel of claim 7, in which said pulling line (8) is arranged for being extended from a net drum (6, 7) and at least through the lock chamber (1) and through said aft trunk channel (12) and said sluiceway (2).

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17. The vessel of claim 1, having a transverse roller (20b) in deck level at the top of said stern (21), for guiding the trawl net during ejection.

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18. The vessel of claim 1, having a lock canal (4) arranged between said sluiceway (2) and said lock chamber (1), said lock canal (4) having a somewhat smaller cross-section area than the cross-section area of said lock chamber (1).

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19. A vessel according to claim 1, in which a lower lock chamber storage sump (1b) arranged in a widened portion in said lock chamber (1), with a lock chamber floor (19) being arranged deeper than a lower part of said sluiceway (2), and a horizontal grating (1c).

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20. A vessel according to claim 13, in which the lock chamber (1) is widened forward of said lock canal (4) and above said grating (1c) and said lock chamber storage sump (1b) arranged for providing space for fish being discharged from said trawl sack through said zips (33h, 33sb, 33p).

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21. The vessel according to claim 1, said trawl sack (3) having one or more horizontal zips (33h) in either starboard or port side of the trawl sack (3), to release the catch sideways.

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22. A vessel according to claim 1, with a baffle plate (9b) arranged to be moved to block a part of the lock chamber's (1) cross-section between said lock canal (4) and said lock chamber (1), for attenuating sloshing in said lock chamber (1).

23. A vessel according to claim 1, with a submerged hind part (41) of the vessel's bottom (22) and stern (21), in which said submerged hind part (41) envelopes the sluiceway (2).

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24. A vessel according to claim 1, having an inspection trunk or shaft (14) running through the lock chamber ceiling (18), mainly over the middle portion of the lock chamber (1), for inspecting and manual handling of the trawl sack (3), possibly manual splitting of the trawl sack (3) if a release line for the zip (33h, 33sb, 33p) at

the trawl sack (3) cannot be released via a release line through the forward or aft trunk.

25. A vessel according to claim 1, in which a portion of the lock chamber ceiling (18) arranged to extend below the vessel's waterline so that a free surface of any essential size on the water in the lock chamber (1) are attenuated.

26. A vessel according to claim 1, having one or more sluiceways (2) arranged to the side of said vessel's centreline, in said stern (21).

27. A method for trawl catching of marine bio-resources, with a vessel comprising trawl winches (62) and trawl drums (6) for ejecting and hauling a trawl net (5) and ancillary lines (51, 61), with a trawl sack (3) attached to the trawl net (5), said trawl sack (3) arranged for keeping the catch, characterized in

hauling said trawl sack (3) containing the catch, from the sea, through a sluiceway (2) mainly below said vessel's waterline, to a lock chamber (1) having a water volume being mainly below said vessel's waterline, and releasing said catch along zips (33h, 33sb, 33p) in the trawl sack (3), through a grating to a lock chamber storage sump (1b).

28. The method according to claim 27, in which said trawl net (5) is hauled in over a transverse roller (20b) near the sluiceway (2), and in which the trawl sack is separated from the trawl sack (3) and possibly the trawl sack extension (35), whereby the trawl sack and the trawl sack extension is hauled in separately through said sluiceway (2).

29. The method according to claim 27, in which the trawl sack is opened along a vertical zip (33v) and hauled up through a forward or aft trunk channel so that the catch is kept in the lock chamber, and that the fish is pumped out of the lock chamber by means of a fish pump to e.g. either a storage or for refining on board the vessel.

30. The method according to claim 27, using a trawl sack extension (35) arranged between the trawl sack (3) and the trawl net (5).

31. The method according to claim 72, using trawl doors (60) which are disconnected from the hauling lines (51, 61) before hauling the trawl net on board the vessel.